## AMENDMENTS TO THE CLAIMS

**This listing of claims will replace all prior versions and listings of claims in the application:**

## LISTING OF CLAIMS:

1. (currently amended): A method for the spatially resolved polarimetric examination of an imaging beam pencil ~~(1)~~ generated by ~~an associated~~a radiation source ~~(9)~~ of pulsed operation, ~~having the following steps~~comprising:

- ~~introduction of~~introducing a first photoelastic modulator ~~(6a)~~, a second photoelastic modulator ~~(6b)~~ and a polarization element ~~(5) serially~~ into a path of the beam pencil ~~(1)~~,

- ~~activation of~~activating a first modulation oscillation of the first photoelastic modulator and a second modulation oscillation of the second photoelastic modulator,

- ~~use of a pulsed radiation source (9) for generation of~~generating the beam pencil and driving of the radiation source for outputting a respective radiation pulse in a manner dependent on the oscillation state of at least one of the first photoelastic modulator ~~and/or~~and the second photoelastic modulator, and

- ~~spatially resolved detection of~~detecting the beam pencil coming from the polarization element ~~(5)~~ with a spatially resolving detector.

2. (currently amended): The method as claimed in claim 1, wherein the first and second modulation oscillations are activated with different oscillation frequencies, and further comprising performing a plurality of measurement operations ~~are carried out~~ for different phase angles of the two modulation oscillations of the photoelastic modulators and determining a spatially resolved Stokes vector ~~is determined on the basis of~~ from results of the measurement ~~results~~operations utilizing the spatially resolving detector.

3. (currently amended): The method as claimed in claim 2, wherein at least four of the measurement operations are carried out respectively for ~~the~~ phase angle pairs ~~($\alpha$, $\beta$), ($\alpha$, $\beta$ + 90°), ($\alpha$ + 90°, b) and ($\alpha$ + 90°, $\beta$ + 90°)~~ ($\alpha_1$, $\alpha_2$), ($\alpha_1$, $\alpha_2$ + 90°), ($\alpha_1$ + 90°, $\alpha_2$) and ($\alpha_1$ + 90°, $\alpha_2$ + 90°) of the phase angles of the two modulation oscillations of the photoelastic modulators, where ~~$\alpha$ and $\beta$~~$\alpha_1$ and $\alpha_2$ designate ~~predeterminable~~predetermined phase angles.

4. (currently amended): The method as claimed in claim 3, wherein the phase angles ~~$\alpha$ and $\beta$~~$\alpha_1$ and $\alpha_2$ are both predetermined as 0°.

5. (currently amended): The method as claimed in claim 2, wherein the difference between the oscillation frequencies of the two photoelastic modulators is ~~chosen to be~~ in the range of between 0.1 kHz and 10 kHz.

6. (currently amended): The method as claimed in claim 5, wherein the oscillation frequency difference is ~~chosen to be in the region of~~ around 1 kHz.

7. (currently amended): The method as claimed in one of claims 1 to 6, ~~wherein an imaging beam pencil of~~further comprising introducing a sample system ~~introduced~~ into the beam path of the beam pencil ~~is examined~~.

8. (original): The method as claimed in claim 7, wherein the sample system is a projection objective of a microlithography projection exposure apparatus.

9. (currently amended): The method as claimed in claim 8, ~~wherein the examination of the imaging beam pencil furthermore comprises~~further comprising performing an interferometric wavefront measurement of the projection objective using the beam pencil.

10. (currently amended): The method as claimed in claim 7, wherein the two photoelastic modulators are positioned at essentially ~~the same distance (a)~~equal distances from a convergence point ~~(7)~~ of the beam pencil.

11. (currently amended): An apparatus for the spatially resolved polarimetric examination of an imaging beam pencil ~~(1)~~, ~~having~~comprising:

- a pulsed radiation source ~~(9) for~~ generating the beam pencil,

- a first photoelastic modulator ~~(6a)~~, a second photoelastic modulator ~~(6b)~~ and a polarization element ~~(5)~~, ~~which can be~~each positioned ~~serially~~ in ~~the~~a beam path of the beam pencil,

- a control unit ~~(8) for the control of~~ controlling the photoelastic modulators ~~(6a, 6b)~~ and ~~for the~~ driving ~~of~~ the pulsed radiation source in a manner correlated ~~therewith~~with the control of the photoelastic modulators, and

- a spatially resolving detector ~~(4) for the spatially resolved detection of~~detecting the beam pencil coming from the polarization element.

12. (currently amended): The apparatus as claimed in claim 11, wherein an evaluation unit ~~(10)~~ is provided, which determines a spatially resolved Stokes vector on the basis of the detection information from the detector ~~(4)~~.

13. (currently amended): The apparatus as claimed in claim 11, ~~wherein it is set up~~ with a sample system inserted into the beam path of the beam pencil and configured for the spatially resolved polarimetric examination of ~~an~~the imaging beam pencil ~~of a sample system~~.

14. (original): The apparatus as claimed in claim 13, wherein the sample system is an optical imaging system and the examination comprises a pupil-resolved interferometric wavefront measurement of the optical imaging system.

15. (original): The apparatus as claimed in claim 14, wherein the sample system is a microlithography projection objective.